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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/469,317	12/22/1999	HYUN-EUN KIM	P64146US0	4832

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400 SEVENTH STREET NW  
WASHINGTON, DC 20004

EXAMINER

SOLOMON, GARY L

ART UNIT	PAPER NUMBER
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2615

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DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/469,317

Applicant(s)

KIM ET AL.

Examiner

Gary L Solomon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Yiannoulos (US 5,82,318).

For claim 1, the Yiannoulos reference discloses an apparatus for converting an analog image data into a digital image data in a CMOS image sensor including a pixel array having M (row line) x N (column line) color pixels (Column 2, lines 45-48), wherein the color pixels include a first color pixel for sensing a first color, a second color and third color pixel for sensing a third color (Column 9 Line 60 through Column 10, Line 5), the apparatus comprising:

a) an analog reference voltage generating means for generating different analog reference voltages according to the color pixels, wherein the different analog reference voltage has a different value and different decline rate (Column 10 Lines 15-36);

b) a selecting means, in response to a select control signal, for selecting one of the corresponding analog reference voltages according to the color pixels (Figure 6, Element 32);  
and

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c) a comparing means for comparing the analog reference voltage and the analog image data into the digital image data is differently carried out according to the color characteristic (Column 10, Lines 5-35; Figure 3, Element 30).

For claim 2, the Yiannoulos reference discloses all the previous limitations and also, herein the analog reference voltage generating means includes:

a first reference voltage generator for generating a first reference voltage with respect to the first color pixel;

a second reference voltage with respect to the second color pixel; and

a third reference voltage with respect to the third color pixel (Column 10, Lines 24-30).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yiannoulos.

For claim 3, the Yiannoulos reference discloses all the previous limitations. However, Yiannoulos does not explicitly show arranging the color pixels in the array in the form of the Bayer Pattern, the pattern including:

the first color pixels and the second color pixels repeatedly arranged on odd row lines of the pixel array in this order;

and the second color pixels and the third color pixels repeatedly arranged on even row lines of the pixel array in this order.

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Nevertheless, the Bayer pattern is an old and widely used pattern in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a Bayer Pattern for the color pixel array in Yiannoulos's invention since such a filter pattern is well established in the art and easily available.

5. Claims 4–6 rejected under 35 U.S.C. 103(a) as being unpatentable over Yiannoulos in view of Xiao (US 6,137,432).

For Claim 4, Yiannoulos discloses all the previous limitations, but does not disclose in his teachings wherein the selecting means includes:

a first selecting means, arranged on the odd column lines, for selecting one of the first reference voltage and the second reference voltage in response to the select control signal according to the color pixels; and

a second selecting means, arranged on even column lines, for selecting one of the second reference voltage and the third reference voltage in response to the select control signal according to the color pixels.

However, Xiao teaches in his apparatus wherein the selecting means selects the appropriate analog reference voltage in accordance with different values of analog reference voltage signals (Figure 6). Xiao's method of selecting different analog signals can easily be altered by one of ordinary skill in the art to use different analog reference voltages of color pixels.

It is well known in the art to select first and second analog reference voltages for a given column of an image array having columns parallel with Analog-Digital Conversion, as disclosed in Figures 1 and 2 of Xiao. Therefore, it would have been obvious to one of ordinary skill in the

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art at the time of the invention to configure the selection means of if Yiannoulos as recited in order to implement an operation using the well-known Bayer Pattern.

For claim 5, the Yiannoulos reference discloses the first color pixel is a red color pixel, the second color pixel is a green color pixel, and the third color pixel is a green color pixel (Column 10, Line 4).

For claim 6, the selection of Yiannoulos and Xiao is a multiplexer (Figure 2 Element 30; Column 2, Line 30-33).

### *Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L Solomon whose telephone number is (703)-305-4370.

The examiner can normally be reached on Monday - Friday 8:00 AM - 5:00 PM.  
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christensen, B Andrew can be reached on (703)-308-9644.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**Or faxed to:**

**(703) 872-9314**, (for informal or draft communications, please label  
"Proposed" or "Draft")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA., Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application should be directed to the customer service number **(703) 306-0377**.

  
August 11, 2003



**ANDREW CHRISTENSEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600**